FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: June 28, 1996
Date Received: June 20, 1996
Project: Nitric Tests, PO #M53709
Date Samples Extracted: June 24, 1996
Date Extracts Analyzed: June 26, 1996

RESULTS FROM THE ANALYSIS OF PROCESS WATER SAMPLES FOR TOTAL METALS BY INDUCTIVELY COUPLED PLASMA (ICP) (METHOD 6010)

Samples Processed Using Method 3005A

Results Reported as mg/L (ppm)

Sample ID	M53709 A Small Tank	M53709 B	Method Blank
Analyte:			
Arsenic	40	33	<5
Cadmium	<1	<1	<1
Chromium	8,100	6,500	<1
Lead	14	7	<1
Silver	<1	<1	<1
Copper	4,600	780	<1
Nickel	10,000	5,800	<1
Zinc	6	7	<1
Iron	43,000	32,000	<10

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ENVIRONMENTAL CHEMISTS

Date of Report: June 28, 1996
Date Received: June 20, 1996
Project: Nitric Tests, PO #M53709

QUALITY ASSURANCE RESULTS FOR TOTAL METALS BY INDUCTIVELY COUPLED PLASMA (ICP) (METHOD 6010)

Laboratory Code: 69949 (Duplicate)

Analyte:	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference	Acceptance Criteria
Arsenic	mg/L (ppm)	40	40	0	0-20
Cadmium	mg/L (ppm)	<1	<1	nm	0-20
Chromium	mg/L (ppm)	8,100	8,200	1	0-20
Lead	mg/L (ppm)	14	14	0	0-20
Silver	mg/L (ppm)	<1	<1	nm	0-20
Copper	mg/L (ppm)	4,600	4,700	2	0-20
Nickel	mg/L (ppm)	10,000	10,000	0	0-20
Zinc	mg/L (ppm)	6	6	0	0-20
Iron	mg/L (ppm)	43,000	45,000	5	0-20

Laboratory Code: Spike Blank

Analyte:	Reporting Units	Spike Level	% Recovery MS	% Recovery MSD	Acceptance Criteria	Relative Percent Difference
Arsenic	mg/L (ppm)	100	104	106	80-120	2
Cadmium	mg/L (ppm)	50	102	102	80-120	0
Chromium	mg/L (ppm)	50	106	105	80-120	1
Lead	mg/L (ppm)	100	99	99	80-120	0
Silver	mg/L (ppm)	20	na	na	50-150	na
Copper	mg/L (ppm)	50	102	103	80-120	1
Nickel	mg/L (ppm)	100	104	104	80-120	0
Zinc	mg/L (ppm)	50	100	101	80-120	1
Iron	mg/L (ppm)	100	102	106	80-120	4

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

na - The analyte indicated was not added to the matrix spike sample.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: June 28, 1996
Date Received: June 20, 1996
Project: Nitric Tests, PO #M53709
Date Analyzed: June 27, 1996

RESULTS FROM THE ANALYSIS OF PROCESS WATER SAMPLES FOR SPECIFIC GRAVITY @ 15.56 °C

Sample ID	Specific Gravity
M53709 Small Tank	1.21
M53709 B	1.19

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: June 28, 1996
Date Received: June 20, 1996
Project: Nitric Tests, PO #M53709

QUALITY ASSURANCE RESULTS FOR SPECIFIC GRAVITY

Laboratory Code: 69950 (Duplicate)

Analyte:	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference
Specific Gravity	@ 15.56°C	1.19	1.19	0.0

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: June 28, 1996
Date Received: June 20, 1996
Project: Nitric Tests, PO #M53709
Date Analyzed: June 27, 1996

RESULTS FROM THE ANALYSIS OF PROCESS WATER SAMPLES FOR % ACID BY VOLUME

Sample ID	% Acid
M53709 Small Tank	8.5
M53709 B	9.0

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: June 28, 1996
Date Received: June 20, 1996
Project: Nitric Tests, PO #M53709

QUALITY ASSURANCE RESULTS FOR % ACID BY VOLUME

Laboratory Code: 69950 (Duplicate)

Analyte:	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference
Acid	% by volume	9.0	9.0	0

KNS AT
6.20.96
2:17

FRIEDMAN & BRUYA, INC.
3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282

SAMPLE CHAIN OF CUSTODY

Send Report To: Alaskan Copper Work Contact Gerard Thompson
Company
Address 660 Alaskan St
City, State, Zip Seattle WA 98134
Phone # (206) 382-0379 Date 6-20-96

SITE NO.	PROJECT NAME	PURCHASE ORDER #
7255	Nitric tests	M53709

SAMPLERS (signature)

PROJECT LOCATION

REMARKS

SAMPLE DISPOSAL INFORMATION
- ☐ Dispose after 30 days
- ☒ Return Samples
- ☐ Call for Instructions

Sample #	Date/Time Sampled	Type of Sample	# of Jars	Lab Sample #	Analyses Requested
M53709A	1:15pm 6/20	nitric	1	6995049	% of Acid / Sp.
Small TANK					As Cr Cu Ni Zn Cd Pb Ag FE
M53709B	1:15 6/20	nitric	1	6995D	% of Acid / S.G.
					As Cr Cu Ni Zn Cd Pb
					Ag FE

SIGNATURE	PRINT NAME	COMPANY	Date	Time
Relinquished by:	Gerard Thompson	A.C.W	6/20/96	1:50pm
Received by: Cathy Downing	Cathy Downing	FAB I	6/20/96	1:50pm
Relinquished by:				
Received by:				

FORMS/COC 09/19/94

AKC-0012159

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D
Beth M. Albertson, M.S.
Bradley T. Benson
Kelley D. Wilt

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
FAX: (206) 283-5044

June 28, 1996

INVOICE # 96ACU0628-1
DUPLICATE COPY

Accounts Payable
Alaskan Copper Works
628 South Hanford
Seattle, WA 98134

RE: Project Nitric Tests, PO #M53709: Results of testing requested by Gerry Thompson,
Project Manager for material submitted on June 20, 1996.

2 process water samples analyzed for Total Metals by Method 6010 @ $115 per sample	$ 230.00
2 process water samples analyzed for Specific Gravity @ $25 per sample	50.00
2 process water samples analyzed for % Acid by Volume @ $25 per sample	50.00

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
FAX: (206) 283-5044

June 28, 1996

Gerry Thompson, Project Manager
Alaskan Copper Works
628 South Hanford
Seattle, WA 98134

Dear Mr. Thompson:

Enclosed are the results from the testing of material submitted on June 20, 1996 from your Nitric Tests, PO #M53709 project.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Kurt Johnson
Chemist

keh
Enclosures
ACU0628R.DOC